S/148/60/000/010/004/018
A161/A030

AUTHORS: Druzhinin, V.P.; Iodko, E.A.; Kitayev, A.T.; Krupman, L.I.; Tarapay, M.A.; Chevela, L.A.; Yankelevich, Ya.P.

TITLE: Investigation of the Thermal Behaviour of Intermediate Ladles

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, No. 10, pp. 58 - 66

TEXT: The investigation had been carried out to determine the heat losses from metal in intermediate ladles. Small ladles at the New-Tula Metallurgical Plant and large at the imeni Dzerzhinskiy Plant were studied. The small ladles were heated with blast furnace gas burning in an oxygen jet, and the large with coke gas; chromelalumel and platinumrhodium-platinum thermocouples were inserted into the ladle linings as shown in Fig. 1 and 2; the metal temperature in ladles was measured with platinumrhodium-platinum and tungsten-molybdenum immersion thermocouples; indicating and recording galvanometers and an ЭПП-09 (EPP-09) writing potentiometer were used. The duration of heating was 20 - 30 min at the New Tula Plant (NTMZ) and 60 - 120 min at the imeni Dzerzhinskiy Plant. A graph gives the measurement results in a large ladle (Fig. 3) - there is practically no

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Investigation of the Thermal Behaviour of Intermediate Ladles

heat gradient inside the intermediate ladle, apparantly due to a feed of fresh hot metal from the main ladle. The lining temperature on the surface quickly reached the metal temperature; it dropped nearly 180°C during 5 min after the gas heating was stopped before teeming. E.A. Iodko and I.I. Krupman calculated the heating of lining to determine the effect of separate factors. The "working" layer of lining was stated to be 20 - 30 mm in small ladles, and 60 - 80 mm in large, which is less or equal to the usual fireclay lining depth and shows that additional heat insulation of the ladle casings is superfluous. The calculation is included in the article. The formula (13) determines the effect of the heat conductivity of the ladle lining on the drop in metal temperature in the ladle and shows that the relation is in direct proportion. The heat loss by radiation had not been considered. It was concluded that the heat conductivity in fireclay brick layers nearest to the contact surface with metal drops in the teeming process and the first metal portions in the intermediate ladle are cooled by the lining surface, whilst the heat gradient inside thelining has practically no influence. It is therefore proper to heat the lining at a high temperature on the surface ignoring high temperature gradients in the lining below the surface, and not to stop heating the ladle before the start of teeming. Cooling of the first metal

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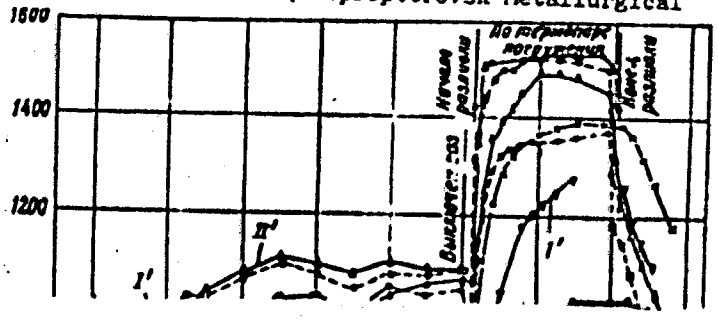
A161/A030

Investigation of Thermal Behaviour of Intermediate Ladles

portions can be decreased by faster filling. Brick with low heat conductivity on the surface must be used. The following participated in the investigation: Ye.I. Isayev, Yu.N. Yakovlev; V.M. Klippa; S.P. Yefimov; G.L. Doronin; S.L. Sologub; N.A. Rokhlin; F.I. Krasinskiy. V.I. Lapitskiy was in charge. There are 6 figures, 2 tables and 4 Soviet references.

ASSOCIATION: Novo-Tul'skiy metallurgicheskiy zavod (New Tula Metallurgic Plant), Zavod imeni Dzerzhinskogo (imeni Dzerzhinskiy Plant), and Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: April 21, 1960



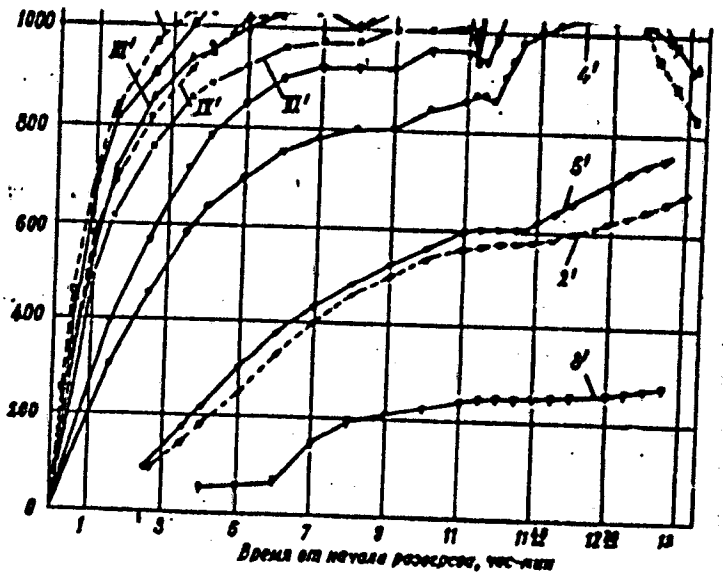
Card 3/4

S/148/60/000/010/004/018
A161/A030

Investigation of Thermal Behaviour of Intermediate Ladles

Figure 3:

Variation of the metal and lining temperature in a large ladle during preheating and teeming. (Temperature from o to 1600°C; time from start of preheating from 1 to 13 h).



Card 4/4

KOLYANOV, G.S., inzh., K.[illegible]

Mastering the rapid [illegible]
228 Mr '65.

USSR / General and Specialized Zoology. Insects. Harmful Insects and Acarids. Chemical Methods in the Control of Harmful Insects and Acarids. P

Abs Jour : Ref Zhur - Biol., No 18, 1958, No. 82949

Author : Kitayev, A. V.
Inst : Not given
Title : Unipolar Electrification of Aerosol in the Field of Coronary Discharge

Orig Pub : Vestn. s.-kh. nauki, 1957, No 9, 127-131

Abstract : In treatment of plants with insecticides or other chemicals in the form of aerosols (dusting, spraying), a considerable part of the chemicals is carried away by the wind. The precipitation of the particles is increased by means of their unipolar electrification; the latter is obtained by the passage of aerosol through the field of coronary discharge between the walls of the ground tube and the

Card 1/2

KITAYEV, A.V., Cand Tech Sci—(diss) "Possibilities of application of electrostatic forces for the precipitation of chemicals for the purpose of plant protection.". Mos, 1958. 16 pp (Min of Agr USSR. Mos Inst of Mechanization and Electrification of Agr), 120 copies (KL,25-58, 113)

DUNSKIY, V.F.; KITAYEV, A.V. (Moskva)

Electrostatic spraying. Zashch. rast. ot vred. i bol. 3 no.4:17-18 Jl-Ag '58. (MIRA 11:9)
(Spraying and dusting equipment)

DUBSKIY, V.F. (Moskva); KITAYEV, A.V. (Moskva)

Precipitation of a unipolar charged aerosol in a closed space.
Koll. shur. 22 no.2:159-167 Mr-Ap '60. (MIRA 13:8)
(Aerosols)

KITAYEV, A.V.

Utilization of ionized air and unipolar aerosols. Zhur. fiz. khim. 36 no.6:1136-1139 Je'62 (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut mediteinskikh instrumentov i oborudovaniya, Moskva.

L 11053-66 EWT(l)/EWA(l)/T/EWA(b)-2 JK

ACC NR: AP6000770 SOURCE CODE: UR/0213/65/000/009/0045/0049

AUTHOR: Dombrovskaya, Yu. F.; Potapov, I. I.; Kitayev, A. V.; Demidov, G. Ye.

ORG: Moscow Division of Lenin Medical Institute im. I. M. Sechenov (Moskovskiy ordena Lenina meditsinskiy institut); Central Institute of Physicians' Graduate Studies (Tsentral'nyy institut usovershenstvovaniya vrachey); All- Union Scientific Research Institute of Medical Instruments and Equipment (Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya)

TITLE: Hand operated electroaerosol generator and its clinical application

SOURCE: Meditsinskaya promyshlennost' SSSR, no. 9, 1965, 45-49

TOPIC TAGS: medical equipment, aerosol dispenser, electric generator, clinical medicine, charged particle

ABSTRACT: Electroaerosol therapy with aerosol particles of approximately identical electric charge can be easily applied with this generator for individual inhalation, called Electrosol - 1 and developed by VNIIMIO. It works with compressed air at 0.3 atmospheres or more and

Card 1/2 UDC: 615.417.1-032: (615.473.9: 621.313.12)

L 11983-66

ACC NR: AP6000770

has a simple pulverizer for dispersing the medication, which is electrically charged in the same operation. The inhalator can be safely turned in any direction and the particles can be positively or negatively charged. The current is 127-220 volts AC. It can also be used for simple inhalation and is easily disassembled for cleaning and sterilization. Clinical application (mostly with negatively charged aerosol) involves daily or every other day inhalations of 5-15 minutes for adults and 3-7 minutes for children. Up to 30 treatments may be given and the course may be repeated after 3-4 weeks. This treatment has been found to have a favorable effect on respiratory organs, blood chemistry and circulation. Antibiotic inhalation obviates the need for repeated injections. The generator may also be used for disinfection and in industry for thin film deposits. This apparatus has been tested, accepted and recommended for commercial production. Orig. art. has: 1 figure.

SUB CODE: 06, 07, 14/ SUBM DATE: 26Apr65/ ORIG REF: 006/ OTH REF: 002

Card 2/2

KOZLOVSKIY, V.I.; KITAYEV, A.V.

Settling of gas ions in respiratory organs. Kos. med. tekh. no.3: 134-138 '65. (MIRA 19:1)

KITAYEV, A.V.; ALEYNIKOVA, I.N.; KOTLYAREVSKAYA, G.G.; PROSHIN, V.A.

Methodology for the measurement of the charge of aerosol particles. Nov. med. tekh. no.3:143-148 '65. (MIRA 19:1)

KITAYEV, B., inzh.

Calculating the cooling of goods in refrigerator cars. Khol. tekh. 35 no. 3:7-9 My-Je '58. (MIRA 11:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta.

(Refrigerator cars)

14(1), 32(3) SOV/66-59-2-28/31

AUTHOR: B. Kitayev

TITLE: On the Question of Refrigeration of Cargo in Isothermic RR Cars (K voprosu okhlazhdeniya gruzov v izotermicheskikh vagonakh)

PERIODICAL: Kholodil'naya tekhnika 1959, Nr 2, p 75 (USSR)

ABSTRACT: The article refers to the letter written by M. Ozerov and L. Skorokhodova, published in the Nr 1 issue 1959 of Kholodil'naya tekhnika and containing critical remarks about a certain book dealing with the method of calculating refrigeration of cargo in isothermic RR cars (see Kholodil'naya tekhnika issue Nr 3, 1958). The writer Kitayev states that the theoretical basis of the calculation as developed in the book is correct and that the criticism can concern only the heat exchange of the surface of the cargo. There-

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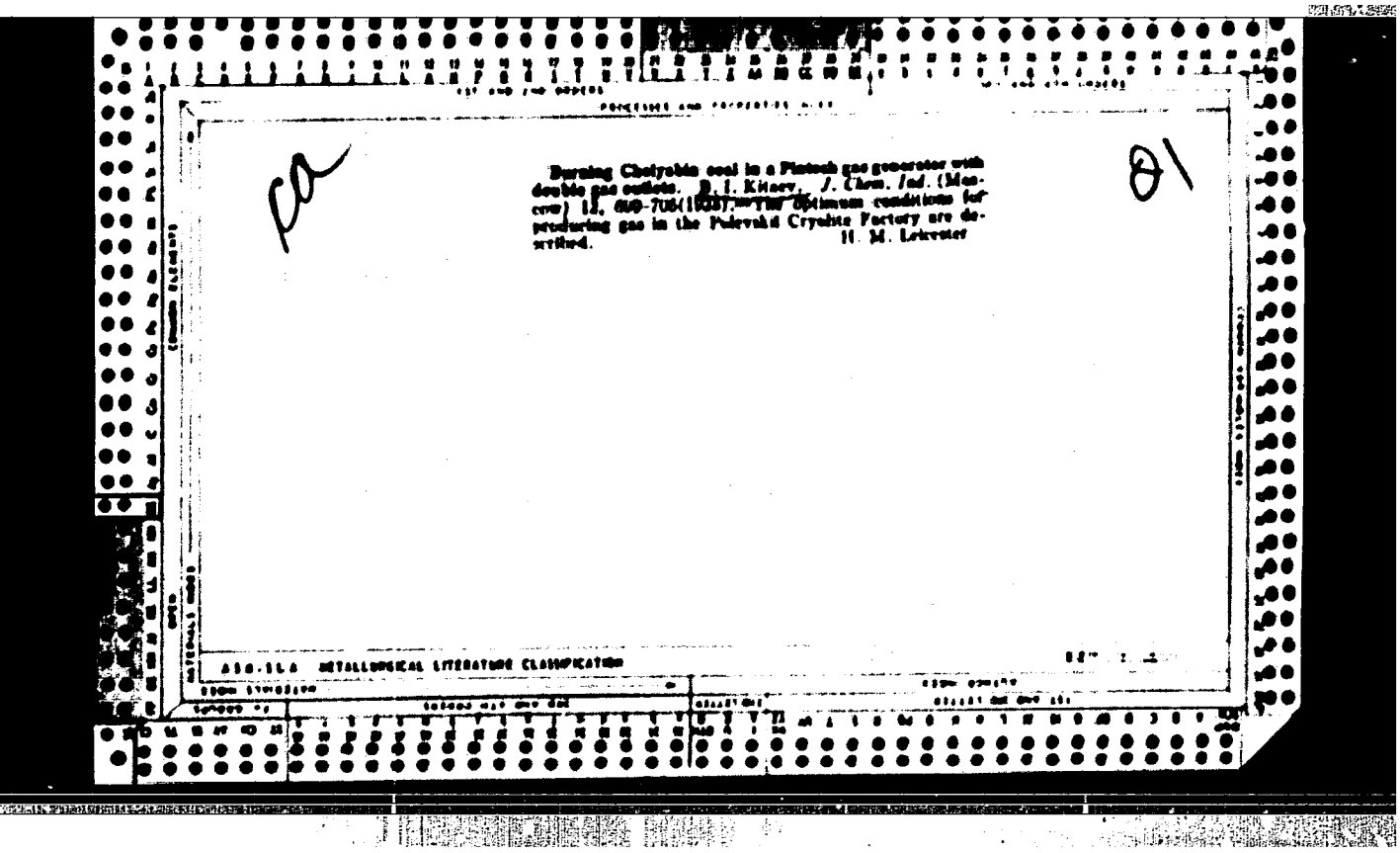
On the Question of Refrigeration of Cargo in Isothermic RR Cars

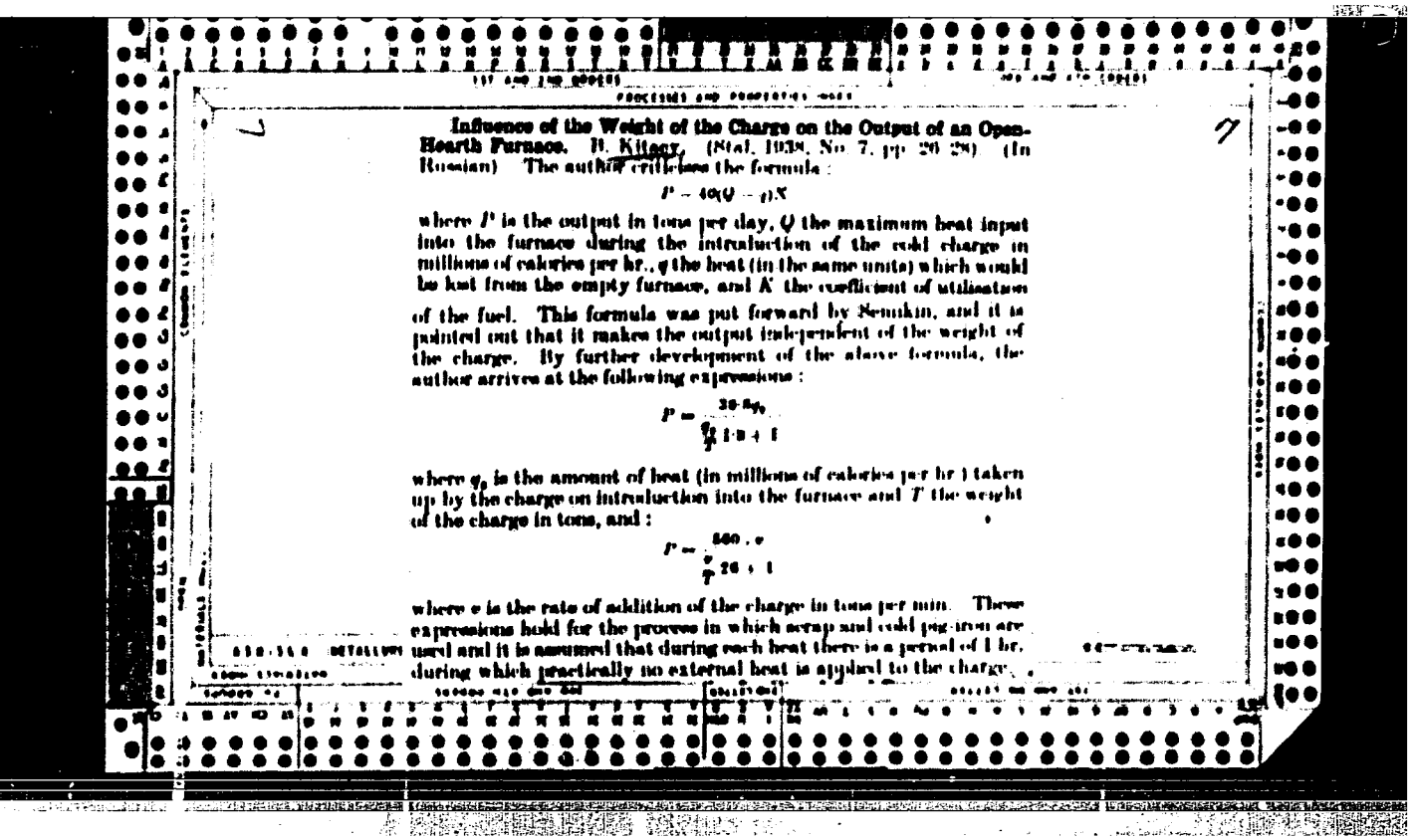
fore Kitayev disagrees with the opinion of Ozerov and Skorokhodova to the effect that the method of calculating refrigeration of cargo in isothermic RR cars is not applicable in practice.

Card 2/2



Burning Chelyabin coal in a Pintsch gas generator with double gas outlets. B. I. Kitaev. *J. Chem. Ind. (Moscow)* 13, 669-708(1936). The optimum conditions for producing gas in the Polevskii Cryolite Factory are described. H. M. Leicester

A50-11A METALLURGICAL LITERATURE CLASSIFICATION



Influence of the Weight of the Charge on the Output of an Open-Hearth Furnace. P. Kitaev. (Stal, 1938, No. 7, pp. 26-28) (In Russian) The author criticises the formula:

$$P = 40(Q - q)K$$

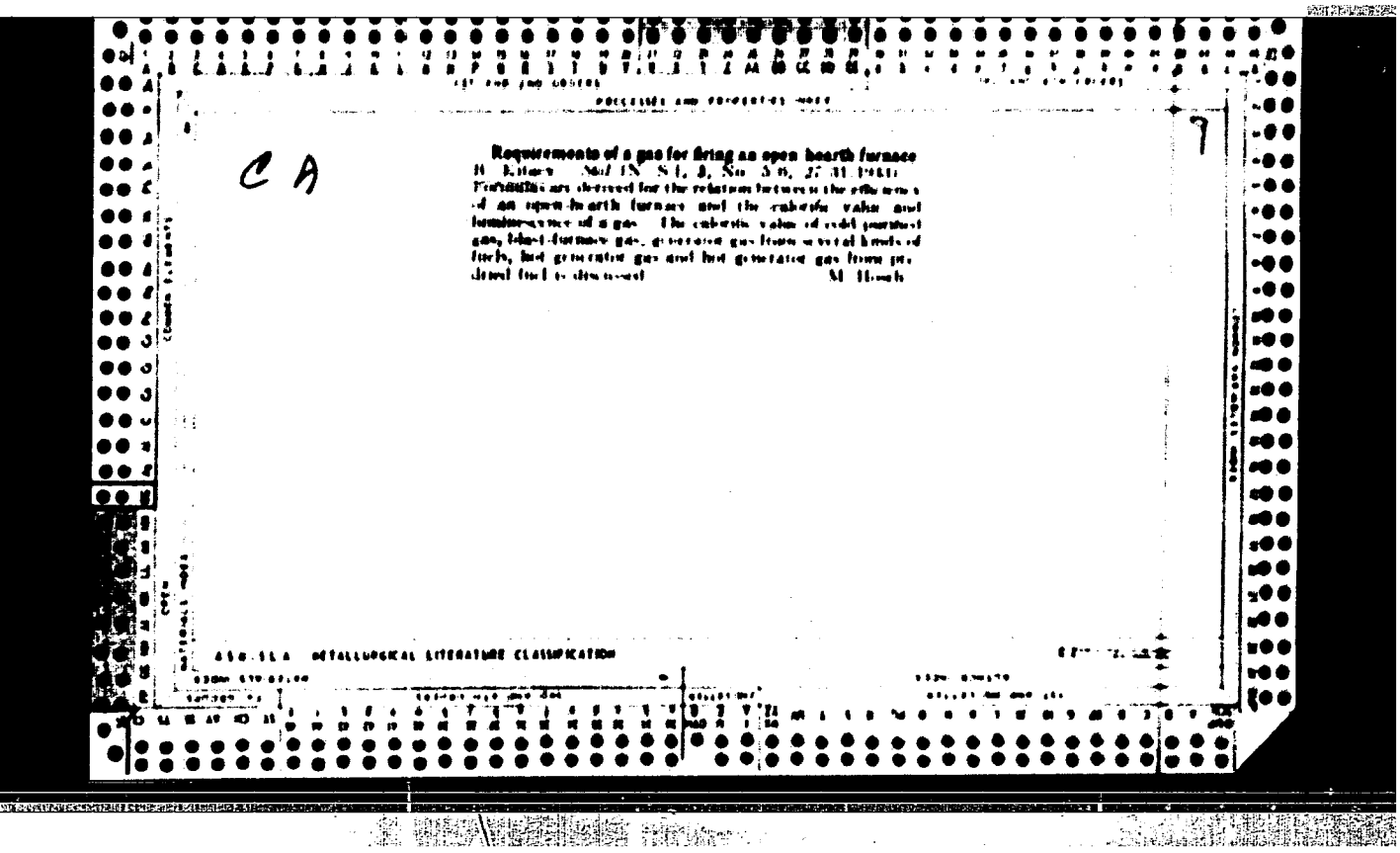
where P is the output in tons per day, Q the maximum heat input into the furnace during the introduction of the cold charge in millions of calories per hr., q the heat (in the same units) which would be lost from the empty furnace, and K the coefficient of utilisation of the fuel. This formula was put forward by Semikin, and it is pointed out that it makes the output independent of the weight of the charge. By further development of the above formula, the author arrives at the following expressions:

$$P = \frac{24 q_0}{\frac{q}{T} 1{\cdot}2 + 1}$$

where q_0 is the amount of heat (in millions of calories per hr.) taken up by the charge on introduction into the furnace and T the weight of the charge in tons, and:

$$P = \frac{480 \cdot e}{\frac{q}{T} 26 + 1}$$

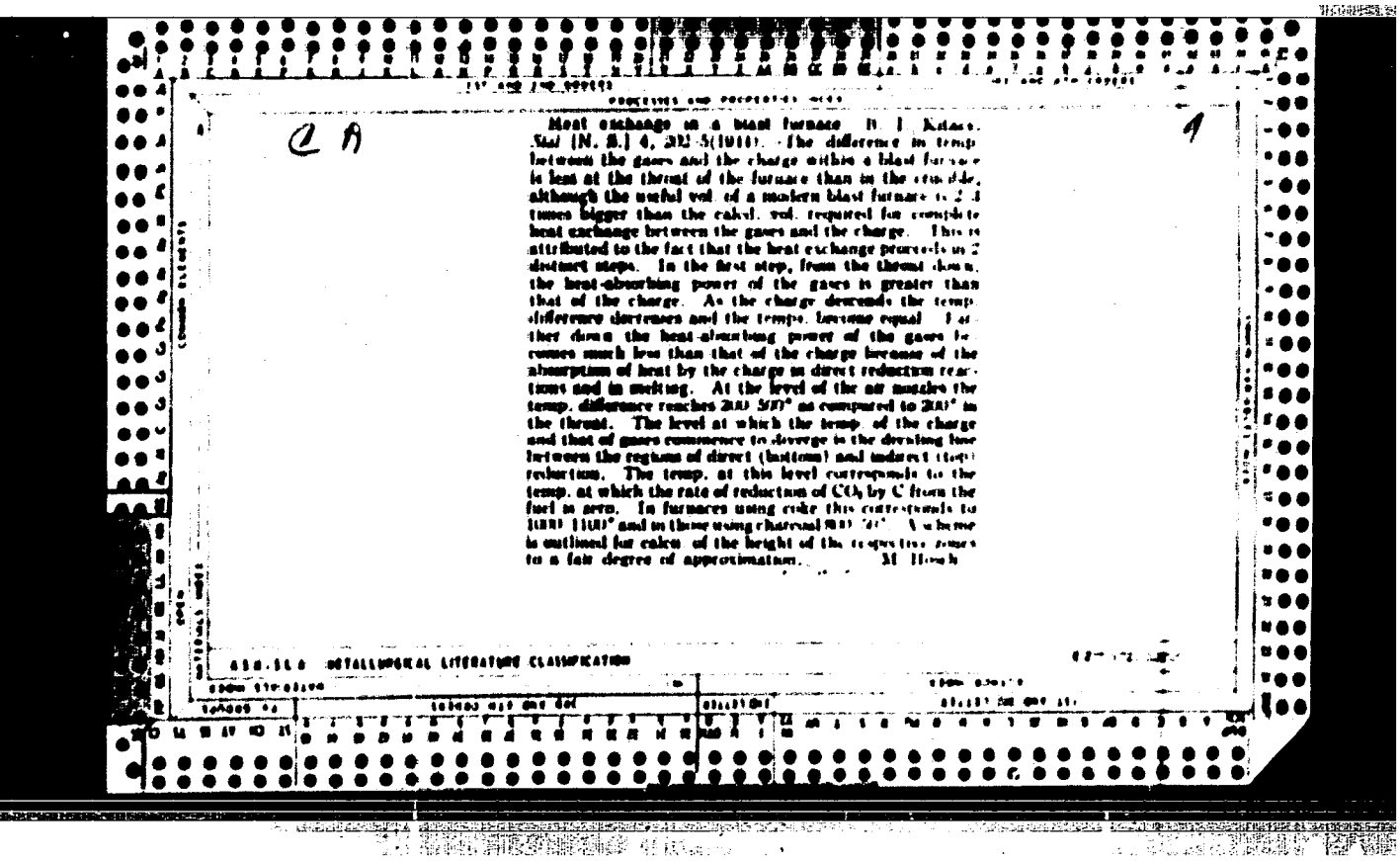
where e is the rate of addition of the charge in tons per min. These expressions hold for the process in which scrap and cold pig-iron are used and it is assumed that during each heat there is a period of 1 hr. during which practically no external heat is applied to the charge.



C A

Requirements of a gas for firing an open hearth furnace

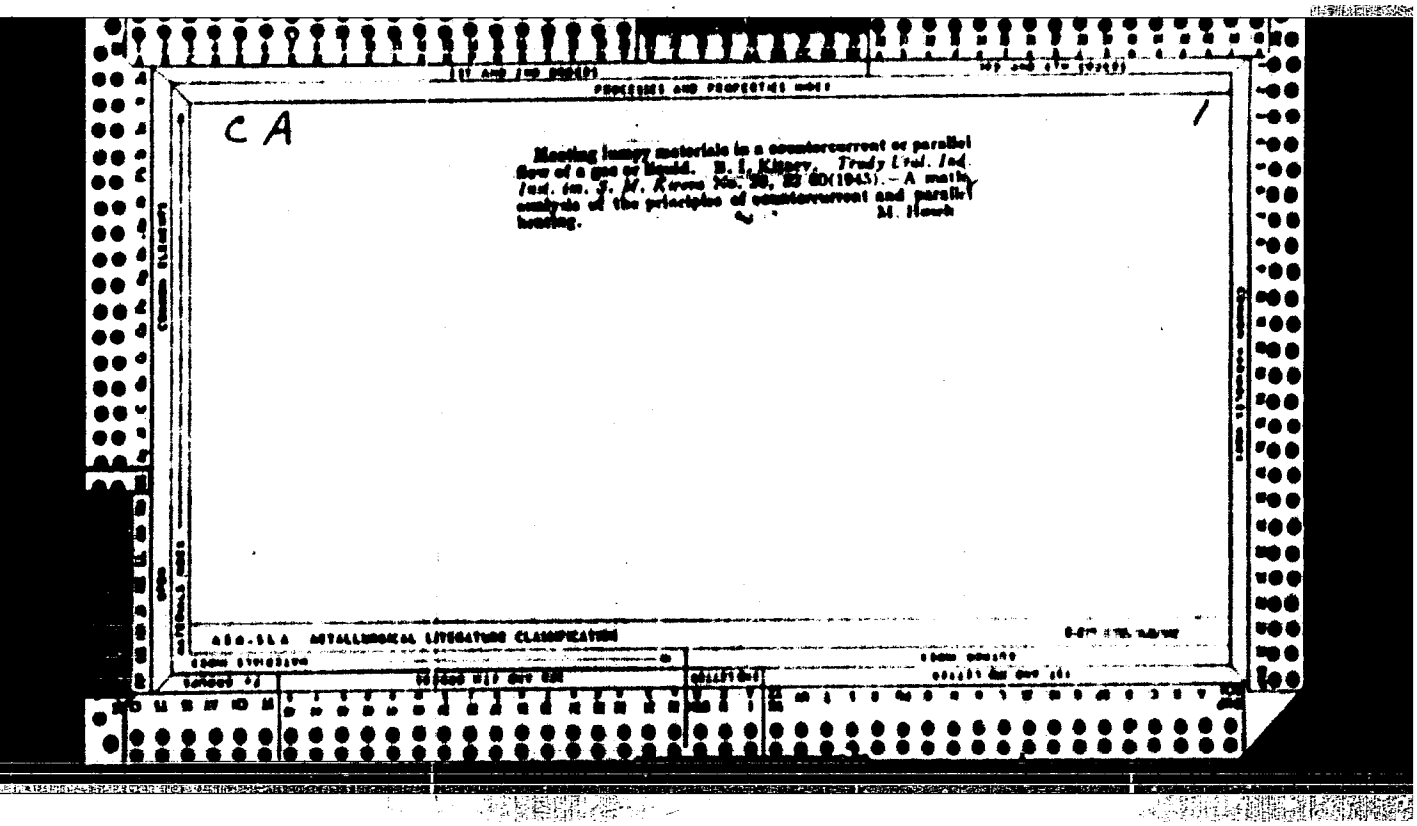
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Heat exchange in a blast furnace B. I. Kitaev. Stal [N. S.] 4, 302-5(1934). The difference in temp. between the gases and the charge within a blast furnace is less at the throat of the furnace than in the crucible, although the useful vol. of a modern blast furnace is 2-3 times bigger than the calcd. vol. required for complete heat exchange between the gases and the charge. This is attributed to the fact that the heat exchange proceeds in 2 distinct steps. In the first step, from the throat down, the heat-absorbing power of the gases is greater than that of the charge. As the charge descends the temp. difference decreases and the temps. become equal. Further down the heat-absorbing power of the gases becomes much less than that of the charge because of the absorption of heat by the charge in direct reduction reactions and in melting. At the level of the air nozzles the temp. difference reaches 200-350° as compared to 200° in the throat. The level at which the temp. of the charge and that of gases commence to diverge is the dividing line between the regions of direct (bottom) and indirect (top) reduction. The temp. at this level corresponds to the temp. at which the rate of reduction of CO_2 by C from the fuel is zero. In furnaces using coke this corresponds to 1000-1100° and in those using charcoal 800-900°. A scheme is outlined for calcn. of the height of the respective zones to a fair degree of approximation. M. Hirsch

[illegible], [illegible]. I.

Teplo luchen[illegible] v shikhtovikh pechakh (heat transfer [illegible] in [illegible] furnaces). Moscow 1945.

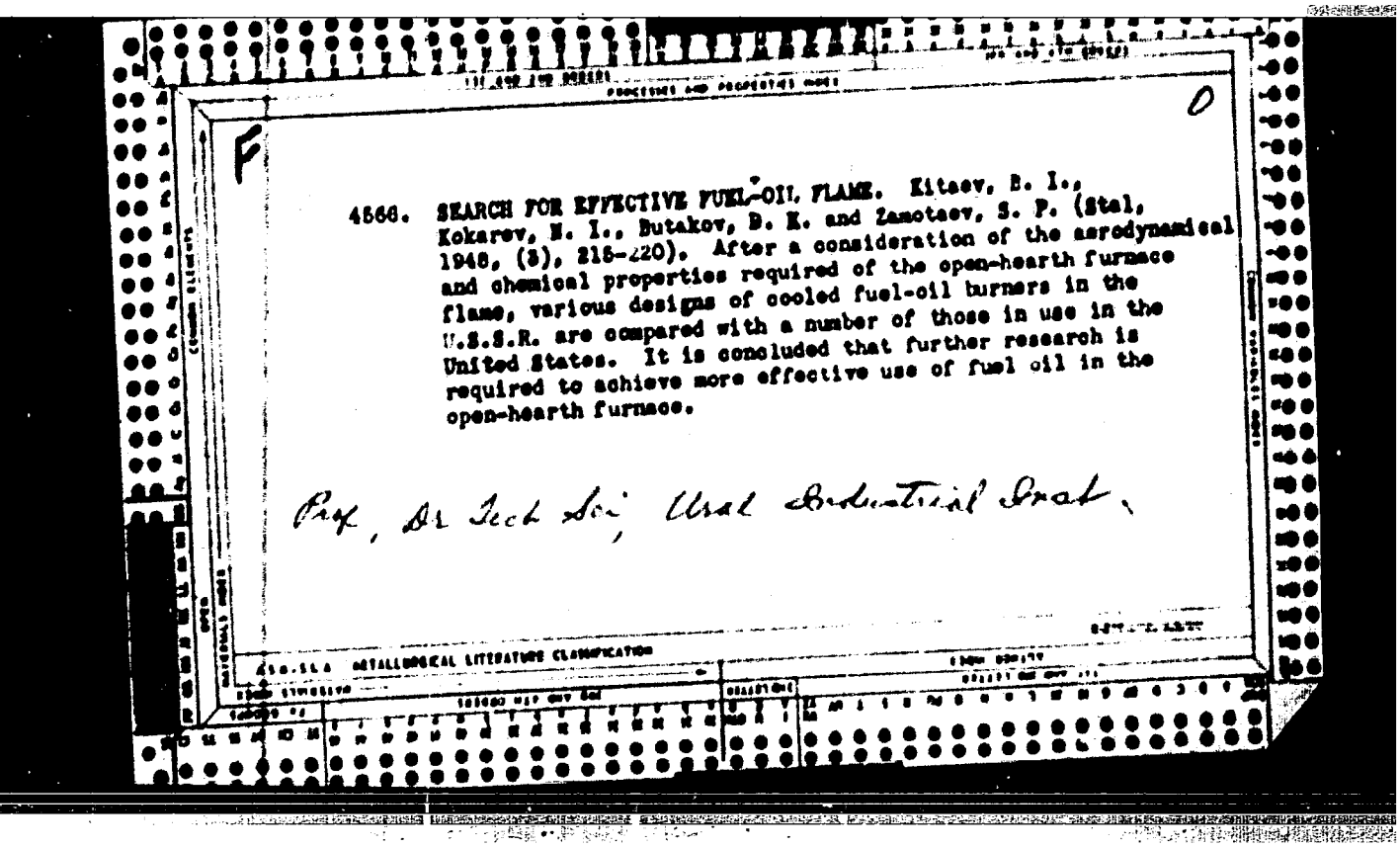


KITAYEV, B. I., Prof.

Professor at Ural Ind. Institute

On Construction of gas-air ports for open-hearth steel furnaces; steel plants.

Soviet Source: Stal (steel) - Moscow - April 1947
Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. 67229.



F

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4566. SEARCH FOR EFFECTIVE FUEL-OIL FLAME. Kitaev, B. I., Kokarev, N. I., Butakov, B. K. and Zamotaev, S. P. (Stal, 1948, (3), 218-220). After a consideration of the aerodynamical and chemical properties required of the open-hearth furnace flame, various designs of cooled fuel-oil burners in the U.S.S.R. are compared with a number of those in use in the United States. It is concluded that further research is required to achieve more effective use of fuel oil in the open-hearth furnace.

Pitt, Dr Tech Sci, Ural Industrial Inst.

[illegible], B. I.; [illegible], V. A.; [illegible], D. V.; [illegible], A. I.; [illegible], M. A.; [illegible], B. L.; KUZMIN, M. A.; MIKHAYLENKO, A. Ya.; NAZAROV, I. S.; PLOTNIKOV, L. A.; SEMIKIN, I.D.; TAYS, N. U.; TROIB, S. G.

Metallurgicheskie Pechi (Metallurgical Furnaces), 975 p., 1951.

KITAYEV, B. I. and SEMIKIN, I. D.

"Equipment and Elements of Furnaces," from the book Metallurgical Furnaces (Metallurgicheskiye Pechi) Metallurgizdat, 1951.

Kitayev, B.I.

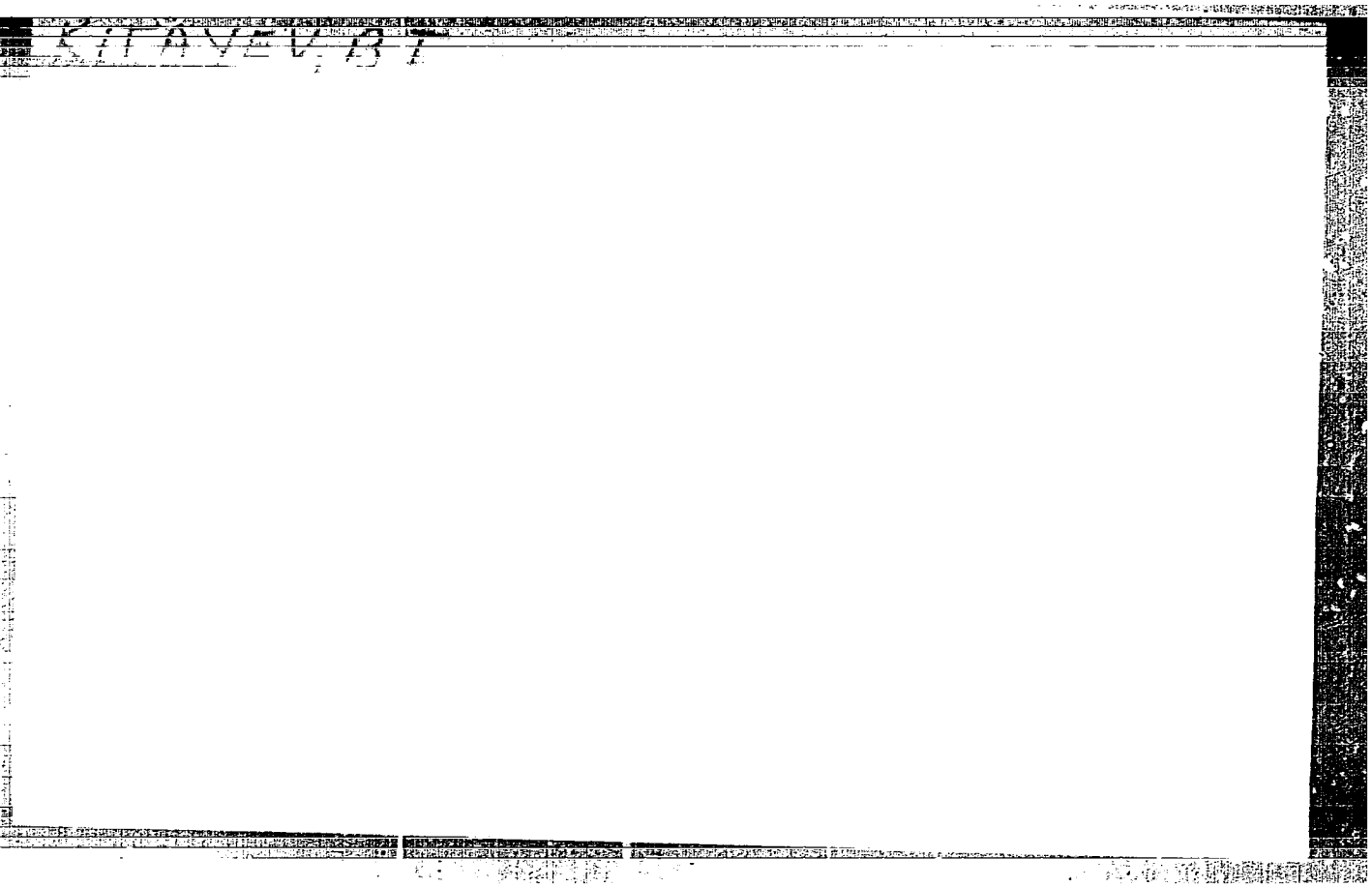
ARSENYEV, A.V.; KITAYEV, B.I., professor, retsenzent; LEVCHENKO, P.V., kandidat tekhnicheskikh nauk, retsenzent; KOVALEROV, A.V., redaktor; KOVALENKO, N.I., tekhnicheskiy redaktor

[Combustion of industrial gases; methods and apparatus] Szhiganie promyshlennykh gazov; metody i pribory. Sverdlovsk, Oos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1952. 390 p. [Microfilm] (MLRA 7:10)

1. Vostochnyy institut toplovoispol'zovaniya (for Arseyev)
(Gas as fuel)

MARIYENBAKH, L.M., doktor tekhnicheskikh nauk, professor; KITAYEV, B.I., professor, doktor tekhnicheskikh nauk, retsenzent; KLETSKIN, G.I., kandidat tekhnicheskikh nauk, retsenzent; LUPANOV, B.P., inzhener, retsenzent; SUDAKIN, Ya.A., inzhener, redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

[Intensifying cupola operation] Intensifikatsiia vagranochnogo protsessa. Moskva, Gos. nauchno-tekhn.izd-vo Mashinostroit. lit-ry, 1954. 386 p. (MIRA 8:4)
(Cupola furnaces)



SOV/124-58-5-5076

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 19 (USSR)

AUTHORS: Telegin, A.S., Kitayev, B.I.

TITLE Slow-motion Moving Pictures Used to Study the Structure of Flames (Izucheniye struktury goryashchikh fakelov s pomoshch'yu lupy vremeni)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta. 1955, Nr 53, pp 7-21

ABSTRACT: The change with time in the structure of flames was studied through the medium of the slow-motion moving picture, which has the effect of "magnifying" time. The slow-motion film revealed the dependence of flame length on the gas-flow rate and led to several conclusions concerning the diffusion mechanism of gaseous combustion. Bibliography: 6 references.

A.Ye. Kadyshevich

1. Flames--Structural analysis 2. Motion pictures--Applications

Card 1/1

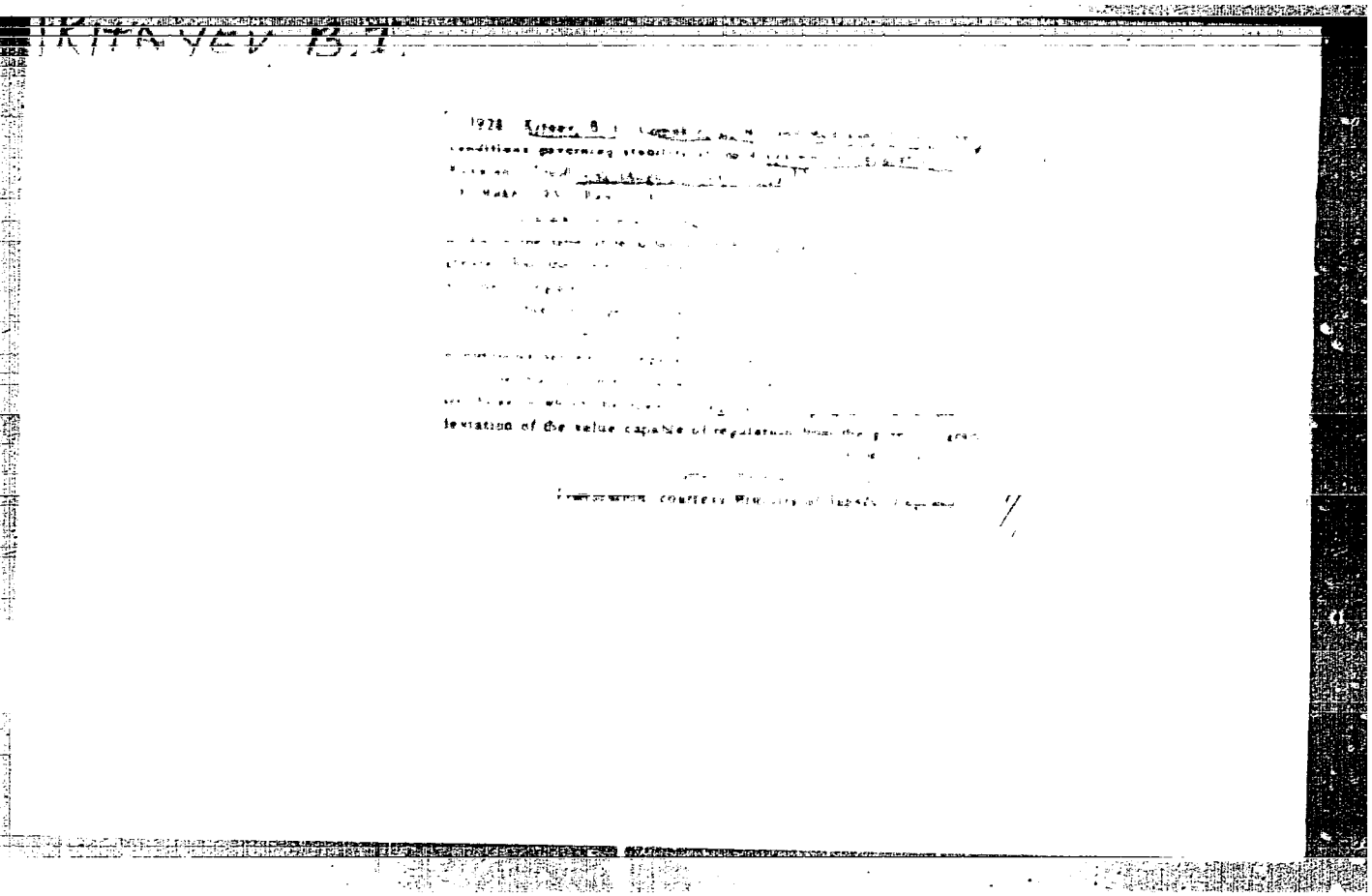
KITAYEV, B.I., professor, doktor tekhnicheskikh nauk; KOKAREV, N.I., dotsent, kandidat tekhnicheskikh nauk; ZAOSTROVSKIY, F.P., dotsent, kandidat tekhnicheskikh nauk; ZAMOTAYEV, S.P., inzhener; CHIKIL'DIN, A.A., inzhener; MOROZOV, N.A., inzhener; LEVIN, L.I., inzhener.

Prolonging the life and improving the performance of Martin furnace regenerators. Trudy Ural.politekh.inst. no.53:42-55 '55. (MLRA 9:5)

(Open-hearth furnaces)

KITAYEV, B.I., professor, doktor tekhnicheskikh nauk; YAROSHENKO, Yu.G., aspirant.

Nomograms and formulas for computing heat exchange in shaft furnaces. Trudy Ural.politekh.inst. no.53:56-60 '55. (MLRA 9:5)
(Metallurgical furnaces) (Heat--Transmission)



KITAYEV, B.Y. inzhener.

Heat engineering calculations for isothermal railroad tanks . Khol. tekh.33 no.2:55-57 Ap-Je '56. (MIRA 9:9)
(Tank cars) (Insulation (Heat))

K

KITAYEV, Boris Ivanovich; YAROSHENKO, Yuriy Gavrilovich; SUCHKOV, Valerian Danilovich; GRUZINOV, V.K., red.; LUCHKO, Yu.V., red. izd-va; ZEF, Ye.M., tekhn.red.

[Heat exchange in shaft furnaces] Teploobmen v shakhtnykh pechakh. Sverdlovsk, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie, 1957. 279 p. (MIRA 11:1)

(Furnaces) (Heat--Transmission)

KRISHNA, B.L., DAS, P.K., and MUKHERJEE, S.C.

"Design of Regenerators," Information Bulletin.

papers to be presented at 11th Annual Technical Meeting of Indian Inst. of Metals, Bombay, India, 1-5 Dec 57.

KITAYEV, B. I., KUMAR, Rajendra, and MUKHERJEE, S.C.

"Principles of heat transfer in the fuel efficiency of Blast Furnaces," Information Bulletin,

papers to be presented at 11th Annual Technical Meeting of Indian Inst. of Metals, Bombay, India, 1-5 Dec 57.

137-58-4-6534

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 30 (USSR)

AUTHOR: Kitayev, B. I.

TITLE: Requirements for Automatic Control Systems for Open-hearth Furnaces Due to the Need for Proper Adjustment of the Flame (Trebovaniya k skhemam avtomaticheskogo upravleniya martenovskoy pech'yu, vytekayushchiye iz nadlezhashchey organizatsii fakela)

PERIODICAL: V sb.: Materialy konferentsii kursov po elektroprovodu i avtomatiz. tekhnol. protsessov metallurg. predpriyatiy Sverdlovsk, Metallurgizdat, 1957, pp 46-54

ABSTRACT: The employment of O_2 and compressed air in the inlet ports, and other measures, tend to increase the turbulence of the flame. The most widely used system of adjusting the fuel-air ratio is that of Koshtyal which, however, does not take into consideration the fact that 1) the amount of CO liberated from the bath may be very high at various periods during the heat; 2) when the rate of emission of the gas, and its heat value, are increased, the excess air does not compensate for the increase in the length of the flame; 3) proportioning is com-

Card 1/2

Requirements for Automatic Control (cont.)

plicated when a furnace is heated by hot generator gas when a viscous carburizer is added. The ratio schedule should be worked out on the basis of an analysis of the combustion products or, better still, directly in terms of the length of the jet of flame. The very low-lag electromagnetic gas analyzer of P. L. Kapitsa, Member of the Academy, may be employed as the primary element. A design employing photoelectric cells should be excited by the temperature of the top of the checkers and should adjust the length of the flame by changing the excess air coefficient. Automatic valve switching should not be employed to eliminate overheating of the roof and the checkerwork, because there is a sharp drop in regenerator efficiency if less than 10-20 minutes elapses between switchings. The most practicable method is the one employing switching after the lapse of a set period of time; preservation of the roof and checker brickwork from overheating has to be accomplished by reducing the length of the flame by means of an automatic gas-to-air ratio control device.

M. M.

1. Furnaces 2. Control systems--Automation 3. Flames--Stability

Card 2/2

SOV/137-59-3-5242

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 45 (USSR)

AUTHORS: Chernyatin, A. N., Kitayev, B. I.

TITLE: On the Maximum Size of a Lump of Charge Material in a Blast Furnace (O maksimal'nom razmere kuska shikhty v domennoy pechi)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1958, Nr 73, pp 74-86

ABSTRACT: An attempt is made to obtain a relationship for determining the maximum lump size (LS) of charge material by means of the laws governing the heat exchange and the aerodynamics of the layer. The relationship found indicates that the height of a blast furnace (F) is determined by the LS and that a slight change in LS causes a fairly large change in the height. A change in LS permits the regulation of the temperatures of a blast F by decreasing or increasing the reserve height of the blast F. The author draws the conclusion that an increase in the yield of the blast F obtained through a simultaneous increase in the LS and the height of a blast F results in a deterioration of its volumetric utilization factor.

Card 1/1 M. O.

CHERNYATIN, A.N.; KITAYEV, B.I.

Effect of burden material properties on heat exchange in the layer. Trudy Ural.politekh.inst. 73:105-122 '58.
(MIRA 12:8)

(Blast furnaces) (Heat--Transmission)

CHERMYATIN, A.N.; KITAYEV, B.I.

New developments in the calculation of zonal heat balances and thermal conditions in blast furnaces. Izv. vys. ucheb. zav.; chern. met. no.10:20-30 '60. (MIRA 13:11)

1. Ural'skiy politekhnicheskiy institut.
(Blast furnaces) (Heat--Transmission)

KITAYEV, B.I.; KUKANKIN, A.S.

Hydrodynamic phenomena in the blast furnace bosh. Izv. vys. ucheb. zav.; chern. met. no.10:40-45 '60. (MIRA 13:11)

1. Ural'skiy politekhnicheskiy institut.
(Blast furnaces--Fluid dynamics)

NOSOV, O.L., inzh.; KITAYEV, B.I., dokotr tekhn.nauk, prof.; BUKKSER, V.Ye., inzh.; RYABOKON', M.K., inzh.; SHALAYEV, V.V., inzh.

Improving the performance of soaking pits. Stal' 20 no. 12:1141-1145 D '60 (MIRA 13:12)

(Furnaces, Heating)
(Rolling mills--Equipment and supplies)

KUKARKIN, A.S.; KITAYEV, B.I.; TIKHONOV, V.P.

Hydrodynamic phenomena in blast furnace charge layers and their effect on changes in the hot blast pressure on tuyeres. Izv. vys. ucheb. zav.; chern. met. 4 no.12:27-30 '61. (MIRA 15:1)

1. Ural'skiy politekhnicheskiy institut.
(Blast furnaces) (Gas dynamics)

KITAYEV, B.I., prof., doktor tekhn. nauk

Development of the thermophysical foundations of the blast-furnace process. Sbor. nauch. trud. Ural. politekh. inst. no.122:169-179 '61. (MIRA 17:12)

LISIYENKO, V.G., inzh.; KORAREV, N.I., kand.tekhn.nauk; KITAYEV, B.I., prof., doktor tekhn.nauk

Some regularities of fuel combustion in open-hearth furnaces. Stal' 21 no.2:178-182 F '61. (MIRA 14:3)

1. Ural'skiy politekhnicheskiy institut.
(Open-hearth furnances—Combustion)

LAZAREV, B.L.; KITAYEV, B.I.; YAFOSHENKO, Yu.O.

Analysis of heat exchange processes in the blast furnace [with summary in English]. Stal' 21 no.3:200-206 Mr '61. (MIRA 14:6)

1. Nizhne-Tagil'skiy metallurgicheskiy kombinat i Ural'skiy politekhnicheskiy institut.
(Blast furnaces--Combustion)
(Heat--Transmission)

KITAYEV, B. I.

KITAYEV, B. I., Professor, Polytechnic Institute Imeni S. M. Kirov, Sverdlovsk - "Physical phenomena in the blast furnace; the blast furnace as a heat exchanger" (Section A)

NEKRASOV, Ye. I., Director, Institute of Ferrous Metallurgy, Academy of Sciences Ukrainian SSR, Dnepropetrovsk - "New techniques used in blast furnaces" (Main lecture, Section C)

reports to be submitted for the International Iron and Steel Meeting Luxembourg, 1-4 Oct 1962

LISIYENKO, V.G.; KOKAREV, N.I.; LITAYEV, B.I.

Application of the laws of the aerodynamics of free flow to calculate the length of a fuel spray flame. Izv. vys. ucheb. zav.; chern. met. 4 no.8:149-157 '61. (MIRA 14:9)

1. Ural'skiy politekhnicheskiy institut.
(Gas dynamics) (Combustion)

KASHTANOVA, S. P.; TIMOFEYEV, V. N.; KITAYEV, B. I.

Heat transfer coefficients from regenerative checkers. Sbor. nauch. trud. VNIIMT no.8:373-390 '62. (MIRA 16:1)

(Heat regenerators)
(Heat—Convection)

KUKARKIN, A. S.; KITAYEV, B. I.

Bridging of the melt in a layer of blast furnace charge. Izv. vys. ucheb. zav.; chern. met. 5 no.12:20-28 '62. (MIRA 16:1)

1. Ural'skiy politekhnicheskiy institut.

(Blast furnaces--Models) (Gas dynamics)

LISIYENKO, V.G., insh.; KITAYEV, B.I., prof., doktor tekhn.nauk; KOKAREV, N.I., dotsent., kand.tekhn.nauk

Investigating elements of design of high pressure burners for open-hearth furnaces. Stal' 22 no.4:357-362 Ap '62. (MIRA 15:5)

(Open-hearth furnaces--Design and construction)

KOKAREV, N.I.; KAPICHEV, A.G.; KITAYEV, B.I.; SEMENENKO, P.P.; ALEKSANDROV, S.F.; POPOV, Ye.S.

Use of compressed air for the acceleration of thermal processes in open-hearth furnaces. Trudy Inst. met. i obog. AN Kazakh. SSR 5:149-154 '62. (MIRA 15:11)

1. Ural'skiy politekhnicheskiy institut i Metallurgicheskiy kombinat im. A.K. Serova.
(Open-hearth furnaces) (Heat—Transmission)

KUKARKIN, A.S.; KITAYEV, B.I.

Studying the sources of hot blast pressure pulsation on blast furnace tuyeres. Izv. vys. ucheb. zav.; chern. met. 6 no.2:31-38 '63. (MIRA 16:3)

1. Ural'skiy politekhnicheskiy institut.
(Blast furnaces)
(Gas flow)

KAPICHEV, A.G.; KOKAREV, N.I.; KITAYEV, B.I.; SEMENENKO, P.P.; POLUYAN, P.N.

Results of testing the thermodynamics of mazut-heated open-hearth furnaces. Stal' 23 no.3:218-221 Mr '63. (MIRA 16:5)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova i Metallurgicheskiy kombinat im. A.K.Serova.
(Open-hearth furnaces--Equipment and supplies)
(Thermodynamics)

KAPICHEV, A.G.; KOKAREV, N.I.; KITAYEV, B.I.; SEMENENKO, P.P.

Sulfur balance in an open-hearth furnace heated with mazut.
Izv. vys. ucheb. zav.; chern. met. 6 no.12:182-194 '63.
(MIRA 17:1)

1. Ural'skiy politekhnicheskiy institut i Metallurgicheskiy kombinat im. A.K. Serova.

LISIYENKO, V.G.; POLZUNOV, A.M.; KITAYEV, B.I.; DEMIDOVICH, A.V.; KOKAREV, N.I.; CHERNOGOLOV, A.I.

Results of research on the efficiency of a mazut flame jet. Izv. vys. ucheb. zav.; chern. met. 6 no.10:139-148 '63. (MIRA 16:12)

1. Ural'skiy politekhnicheskiy institut.

CHERNOGOLOV, A.I.; LISIYENKO, V.G.; KITAYEV, B.I.; KOKAREV, N.I.

Investigating the burner flame in an open-hearth furnace by an improved method of full radiation. Stal' 23 no. 3:276-279 Mr '64. (MIRA 17:5)

1. Institut metallurgii, g. Sverdlovsk, i Ural'skiy politekhnicheskiy institut im. S.M.Kirova.

ARSEYEVA, N.V.; KITAYEV, B.I.

Combustion of hydrocarbon gas in a vertical column in a free stream. Gaz. delo no.5:33-39 '64 (MIRA 17:7)

1. Ural'skiy politekhnicheskiy institut.

KAPICHEV, A. G.; KOKAREV, N. I.; KITAYEV, B. I.; CHEKANOVSKIY, M. L.; SEMENENKO, P. P.; KAMKIN, N. G.; KUT'IN, V. B.

Results of testing heat processes in open-hearth furnaces heated by gasified mazut. Izv. vys. ucheb. zav.; chern. met. 7 no.6:173-178 '64. (MIRA 17:7)

1. Ural'skiy politekhnicheskiy institut.

VASHCHENKO, Aleksandr Ivanovich; GLIKOV, Mark Alekseyevich, prof., doktor tekh. nauk; KITAYEV, Boris Ivanovich; TAYTS, Moy Yur'yevich

[Metallurgical furnaces] Metallurgicheskie pechi. Izd.2., dop. i perer. [By] A.I. Vashchenko i dr. Moskva, Metallurgiia. Pt.2. 1964. 343 p. (MIRA 18:3)

VASHCHENKO, Aleksandr Ivanovich; GLINKOV, Mark Alekseyevich, prof., doktor tekhn. nauk; KITAYEV, Boris Ivanovich; TAYTS, Noy Yur'yevich

[Metallurgical furnaces] Metallurgicheskie pechi. Izd.2., dop. i perer. Moskva, Metallurgiia. Pt.2. 1964. 343 p. (MIRA 18:3)

KISTYENKO, V.G.; KOKAREV, N.I.; KITAYEV, B.I.

Controlled high pressure spray burner and some results of testing it in an open hearth furnace. Izv. vys. uch. zav.; chern. met. 7 no.12:127-134 '64 (MIRA 18:1)

1. Ural'skiy politekhnicheskiy institut.

DUBROV, N.F.; KITAYEV, B.I.; KOKAREV, N.I.; UDOVENKO, V.G.; KONDRAT'YEV, S.N.; ZATULOVSKAYA, Ye.Z.; KLYUCHEROV, A.P.

Review of the book by N.A.Vecher "Highly efficient operation of open-hearth furnaces." Stal' 24 no.7:613-614 Jl '64.

(MIRA 18:1)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov, Ural'skiy politekhnicheskiy institut i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

KAPICHEV, A.G.; LISITENKO, V.G.; KOKAREV, N.I.; KITAYEV, B.I.; SEMENENKO, P.P.; KUTSIN, V.B.

Investigating radiation characteristics of a flame under various methods of burning mazut in an open-hearth furnace. Stal' 24 no.11: 1046-1049 N '64. (MIRA 18:1)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova i Metallurgicheskiy kombinat im. A.K. Serova.

GUSHCHINSKIY, Yu.N.; ALTAYEV, B.I.; LAZAREV, P.I.; YAKUSHENKO, Yu.O.

Stabilizing the heat conditions of a blast furnace by injecting the fuel through the tuyeres. Izv.vys.ucheb.zav.; chern.met. 8 no.6:27-32 '65. (MIRA 18:8)

1. Ural'skiy politekhnicheskiy institut.

NEVSKIY, A.S.; SHABALIN, K.N.; KITAYEV, B.I.; ZAMBOLSKIY, S.S.

Nikolai Ivanovich Syromyatnikov, 1915- ; on his 50th birthday.
Inzh.-fiz. zhur. 8 no.3:411-412 Mr '65.
(MIRA 18:5)

KUKARKIN, A.S.; BAKIN, S.V.; KITAYEV, B.I.

Distribution of gas velocities in blast furnace charge materials.
Izv.vys.ucheb.zav.; chern.met. 8 no.6:33-37 '65.
(MIRA 18:8)

1. Ural'skiy politekhnicheskiy institut.

KITAYEV, B.I.; YAROSHENKO, Yu.G.; LAZAREV, B.L.; SUKHANOV, Ye.L.

Quantitative estimate of heat conditions at a blast furnace top. Izv. vys. ucheb. zav.; chern. met. 8 no.10:31-36 '65.
(MIRA 18:9)

1. Ural'skiy politekhnicheskiy institut.

OVCHINNIKOV, Yu.N.; KITAYEV, B.I.; SHVYDKIY, V.S.; YAROSHENKO, Yu.G.; LAZAREV, B.L.

Analyzing heat processes in a blast furance hearth with fuel injection through the tuyeres. Izv. vys. ucheb. zav.; chern. met. 8 no.10:42-48 '65. (MIRA 18:9)

1. Ural'skiy politekhnicheskiy institut.

KITAYEV, B.L.

The most effective electrolyte circulation in the electrolysis of copper. Tsvet.met. 38 no.3:28-32 Mr '65. (MIRA 18:6)

KITAYEV, B.N.; FILIPPOVA, L.S., red.; VOROB'YEVA, L.V., tekhn. red.

[Thermal action of solar radiation on railroad cars]Teplovoe vozdeistvie solnechnoi radiatsii na vagony. Moskva, Transzheldorizdat, 1962. 30 p. (MIRA 15:7)
(Railroads--Cars) (Solar radiation)

RUBINCHIK, I.M., kand. tekhn. nauk; SHEREMET'YEV, M.A., kand. tekhn. nauk; SAFRONOV, D.I., inzh.; KITAYEV, B.N., kand. tekhn. nauk, retsenzent; FILIPPOVA, L.S., red.; VOROB'YEVA, L.V., tekhn. red.

[Heating, ventilation and air-conditioning systems of the new passenger cars] Sistemy otopleniia, ventiliatsii i okhlazhdeniia vozdukha v novykh passazhirskikh vagonakh. Moskva, Transzheldorizdat, 1963. 29 p. (MIRA 17:1)

B/143/62/000/003/002/007
D238/D302

AUTHOR: Kitayev, D. I., Engineer

TITLE: Investigating the chargin; processes in a voltage-doubler system

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 3, 1962, 10-16

TEXT: In the event of a periodically varying supply voltage or with sharply varying load the charging processes generate harmonics in the valves and overvoltages at the capacitors. A study of the processes is important for the voltage multiplier circuits in high-voltage test plant and feeding radio installations, X-ray equipment, etc. In the case of a Greinacher voltage-doubler circuit not loaded with a capacitor discharge, the output capacity voltage variation in time, during charging, for the general case ($C_1 \neq C_2$) takes the form of a geometric progression. With a constant load-resistance at the voltage-doubler output the mean capacitance charge

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voltage and the rate of voltage rise diminish. The general equation describing the charging process expresses both the transient and steady state performance. Equivalent circuits demonstrate characteristics of the doubler circuit such as the capacity charge at the output following an exponential relation, the rate being determined by the $C_1 : C_2$ ratio and the load; the substantial internal resistance, presenting a limit to the charging currents with sharply varying conditions and a descending load curve; and voltage stabilization at the load with supply-voltage fluctuations depending on the relationships of the circuit capacitances. There are 6 figures and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. Dome, NYSC color television synchronizing signal. Electronics, 25, 2, 96, (1952).

ASSOCIATION: Tsentral'naya vysokovol'tnaya laboratoriya Chelyabenergo (Chelyabinsk Power Corporation Central High-Voltage Laboratory)

SUBMITTED: May 16, 1961

Card 2/2

KITAYEV, G. A.

The structure of extra-thin films of copper hydroxide formed spontaneously on the surface of an aqueous tetramminocopper solution. S. G. Mokrushin, G. A. Kitaev, and O. K. Shabalina. *Doklady Akad. Nauk S.S.S.R.* 94, 1103-11(1954).—The structure of $Cu(OH)_2$ films was studied on the surface of tetramminocopper soln. formed by placing a drop of the soln. on the cover glass directly over the condensor lens of a microscope, and permitting the soln. to evaporize slowly. $Cu(OH)_2$ was formed hydrosolically and appeared under the microscope as a multitude of brilliant colloidal particles in a lively Brownian movement. An extremely thin film was finally formed on the surface, to which the coarser particles by the suspension adhered. A secondary formation was observed on the cover glass, and it was composed of deposited spherical coagulated particles. Some microscopic pictures of the film are reproduced.

W. M. Sternberg

(2)

[illegible], I. A. - "The [illegible] of [illegible] of [illegible] of [illegible] metallic [illegible] oxides on the surface of solutions of [illegible] salts". Sverdlovsk, 1955. Min Higher Education USSR. Ural Polytechnic Inst imeni S. M. Kirov. (Dissertations for the Degree of Candidate of Chemical Sciences.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

KITAYEV, G.A.

MOKRUSHIN, S.G.; KITAYEV, G.A.

Experimental investigation of laminar systems. Part 23. The kinetics of formation of hydroxide films on the surface of coper ammonium solutions. Koll. zhur. 19 no.1:93-99 Ja-F '57.
(MLRA 10:4)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova.
(Films (Chemistry))

[redacted], V. M. and Kiselev, G. A.

"Electronmicroscopic Investigations of the Film Formation Mechanism of Copper Hydroxide on a Solid Surface Belonged to The Group of Reports Devoted to the Problem of Adsorptional Interaction."

report presented at the Section on Colloid Chemistry, VIII Mendeleyev Conference of General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

5(4) SOV/69-21-1-11/21

AUTHORS: Mokrushin, S.G. and Kitayev, G.A.

TITLE: Experimental Research on the Laminar Systems (Eksperimental'nyye issledovaniya laminarnykh sistem).24. The Kinetics of the Formation of Hydroxide Films on the Surface of Cobalt and Nickel Ammine Solutions. (24. Kinetika obrazovaniya gidrookisnykh plenok na poverkhnosti rastvorov ammiakatov kobal'ta i nikelya).

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 1, pp 80-85 (USSR)

ABSTRACT: Research has been conducted on the kinetics of the growth of cobalt and nickel hydroxide films on the surface of solutions of the corresponding ammines with respect to concentration and temperature. The formation of hydroxide films has taken place only in the presence of a monolayer of a surface-active substance on the surface of the solution. The rate of growth of films under a layer of oleic acid has been in-

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Experimental Research on the Laminar Systems. 24. The Kinetics of the Formation of Hydroxide Films on the Surface of Cobalt and Nickel Ammine Solutions.

vestigated. The rate of hydrolysis of the ammines is determined by the rate of ammonia evaporation through the hydroxide film. The following stages are assumed for the formation and growth of cobalt hydroxide films: evaporation of excess ammonia, hydrolysis of cobalt tetrammine with the formation of hydroxide, attachment of the colloidal hydroxide to the surface of the solution. There are 8 graphs, 1 table and 5 Soviet references.

ASSOCIATION: The Ural'skiy politekhnicheskiy institut im.S.M.Kirova, Sverdlovsk (The Ural Polytechnical Institute imeni S.M. Kirov, Sverdlovsk)

SUBMITTED: April 19, 1957

KAZAKOV, Ye.M.; KITAYEV, G.A.; MOKRUSHIN, S.G.

Experimental studies of laminar systems. Part 25: Electron microscopic investigation of the structure and mechanism of formation of ultrathin copper hydroxide films formed on a solid surface. Koll.zhur. 22 no.1:23-24 Ja-F '60. (MIRA 13:6)

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova Sverdlovsk.
(Copper hydroxide) (Films (Chemistry))

27393
S/153/61/004/003/003/008
5.4400 E071/E435

AUTHORS: Kazakov, Ye.M., Kitayev, G.A. and Mokrushin, S.G.

TITLE: An experimental investigation of laminar systems. XXVI. The kinetics and mechanism of the formation of copper hydroxide films on the surface of glass

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, Vol.4, No.3, 1961, pp.411-415

TEXT: The formation of thin films on the phase boundaries liquid-gas and liquid-solid has been investigated in the authors' laboratory since 1930. In the opinion of the authors, the mechanism of the formation of such films consists of the following stages: formation of a colloidally dispersed substance, adsorption of colloidal particles on the phase boundary and their growth due to coagulation. In the present paper, some experimental data on the kinetics of the formation of copper hydroxide film on the surface of glass submerged in a solution of copper ammoniacate are reported and considered in the light of the above postulated mechanism. The experimental procedure consisted of the immersion of washed glass plates into specially prepared

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copper ammoniacate solutions for a given time and measuring the thickness of the film formed by interference colours of the reflected light and the concentration of colloidally dispersed hydroxide in the solution by the nephelometric method. The preliminary preparation of copper ammoniacate solutions consisted of the removal of the excess of ammonia by stirring until the appearance of a noticeable opalescence and filtration. It was found that the highest rates of formation of copper hydroxide films takes place at a concentration of $Cu(NH_3)_4SO_4$ from 0.005 to 0.025 mole/litre. The rate of growth of the film increases with increasing opalescence of the solution. If the hydrolysis of copper ammoniacate is prevented (experiments in closed flasks) then the film growth stopped on the attainment of a certain minimum value of opalescence. This fact is considered as proof of the colloidal-chemical nature of the process of formation of the film. By increasing the surface area open to the atmosphere of the vessel in which the experiments were carried out, i.e. by increasing the rate of removal of ammonia, the velocity of growth of the film increases. To describe the process, the authors used an equation derived by M. Smolukhovskiy for the adsorption of a colloidally

An experimental investigation ...

dissolved substance on a solid surface:

$$M = \frac{2\nu\sqrt{Dt}}{\sqrt{\pi}}$$

where M is the total number of particles adhering to the solid surface at the time t, ν is the number of particles in 1 cm^3, D is the coefficient of diffusion. Assuming ν = constant, $\lg M = K + 0.5 \lg t$. Using this equation and assuming that the thickness of the film Δ is directly proportional to the number of adsorbed particles ($\lg \Delta = K_1 + 0.5 \lg t$), the authors obtained a good agreement between the experimental and calculated results. In the choice of optimal conditions for the process, it is necessary to control the velocity of hydrolysis (i.e. the velocity of formation of sol) and the velocity of coagulation, increasing the former and decreasing the latter. At a high velocity of coagulation (a high concentration of copper ammoniacate and at temperatures above 25°C) the velocity of film growth is low. There are 6 figures and 10 references: 8 Soviet and 2 non-Soviet. The reference to an English language publication reads as follows:

Card 3/4

27393
S/153/61/004/003/003/008
An experimental investigation ... E071/E435

D.A.Lyon, J.Opt. Soc. America, 33, 434 (1943).

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova
Kafedra fizicheskoy i kolloidnoy khimii
(Ural Polytechnical Institute imeni S.M.Kirov,
Department of Physical and Colloidal Chemistry)

SUBMITTED: July 6, 1959

Card 4/4

KITAYEV, G.A.; MOKRUSHIN, S.G.; URITSKAYA, A.A.

Experimental studies of laminar systems. Part 29: Conditions for the formation of thin cadmium sulfide films on a glass surface. Koll. zhur. 27 no.1:51-56 Ja-F '65. (MIRA 18:3)

1. Ural'skiy politekhnicheskiy institut imeni Kirova, Sverdlovsk.

[illegible] Kryvov, S. A., Uritskaya, A. A.; [illegible]

[illegible] Experimental studies of laminar systems. [illegible] formation [illegible] admium sulfide films on the surface of glass

[illegible] Kolloidnyy zhurnal, v. 27, no. 1, 1965, [illegible]

TOPIC TAGS: cadmium sulfide, thin film, thiocarbamide, glass coating, colometric

[illegible]

Card 1/1

ACCESSION NR: AP5014525

$$K = \frac{2.3}{t(a+b)} \log \frac{(b+x)a}{(a-x)b}$$

the initial number of moles of calcium tetraamine, b is the initial num-
the reaction product, [illegible] calcium tetra-
[illegible] the rate constant of the
[illegible] at the same time.

[illegible]

IN: [illegible] SUBCODE: OC, MT

OTHER: [illegible]

Card [illegible]

L 1617-66 EWT(m)/EWP(i)/EWP(t)/EWP(b) LJP(c) JD/JG

ACCESSION NR: AP5021426 UR/0076/65/039/008/2065/2066
541.11

AUTHOR: Kitayev, G. A.; Uritskaya, A. A.; Mokrushin, S. G.

TITLE: Conditions of chemical deposition of thin cadmium sulfide films on a solid surface

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 8, 1965, 2065-2066

TOPIC TAGS: cadmium sulfide, thin film, thiourea, thermodynamic calculation

ABSTRACT: The process of deposition of cadmium sulfide films from aqueous solutions (with the use of thiourea as the sulfiding agent) is treated thermodynamically. The treatment consists in a graphical solution of the equations describing the equilibria

$$Cd(OH)_2 \rightleftharpoons Cd^{2+} + 2OH^-, \quad Cd(NH_3)_4^{2+} \rightleftharpoons Cd^{2+} + 4NH_3.$$

The equations

$$pH = pK_{H_2O} - 1/2\ SP + 1/2\ p[Cd^{2+}] \qquad (1)$$

(where $pK_{H_2O} = 10^{-14}$ is the ion product of water at 25°C and SP is the solubility

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L 1647-66

ACCESSION NR: AP5021426

product) and

$$4p[NH_3] = pK + p[Cd(NH_3)_4^{2+}] - p[Cd^{2+}] \qquad (2)$$

are solved graphically. The graph is used to find the relative concentrations of OH^- and NH_3, or pH and $p[NH_3]$, at which cadmium hydroxide is formed in the solution. Thus, the thermodynamic method describes the decomposition of thiourea with the evolution of S^{2-} ions and the resulting formation of cadmium sulfide and its deposition as a mirror film on any solid surface. The method also makes it possible to simplify the system by eliminating the alkali and using only two reagents - the cadmium salt and thiourea. Orig. art. has: 1 figure and 6 formulas.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: 04Jan65 ENCL: 00 SUB CODE: GC

NO REF SOV: 003 OTHER: 005

Card 2/2

URITSKAYA, A.A.; KITAYEV, G.A.; MOKRUSHIN, S.G.

Experimental study of laminar systems. Part 31: Kinetics and mechanism of the formation of cadmium sulfide films on the glass surface. Koll. zhur. 27 no.5:767-772 S-O '65. (MIRA 18:10)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910018-1

[illegible]

Conditions for the chemical precipitation of thin cadmium sulfide films on a solid surface. Zhur. fiz. khim. 39 no.8: [illegible]-1066 Ag '65. (MIRA 18:9)

[illegible]

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722910018-1"

LUNDIN, A.B.; KITAYEV, G.A.

Mechanism of chemical precipitation of thin films of lead selenide. Izv. AN SSSR. Neorg. mat. 1 no.12:2102 D '65.

Kinetics of precipitation of lead selenide thin films. Ibid.:2107-2112 (MIRA 18:12)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova. Submitted May 31, 1965.

KITAYEV, G.A.; URITSKAYA, A.A.; MOKRUSHIN, S.G.

Experimental studies of laminar systems. Part 30: Kinetics of the formation of thin cadmium sulfide films on a glass surface. Koll.zhur. 27 no.3:379-382 My-Je '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskiy institut imeni Kirova, Sverdlovsk. Submitted July 6, 1963.

L 27900-66

ACCESSION NR: AP5024023 UR/0069/65/027/005/0767/0772
541.18.048

AUTHOR: Uritskaya, A. A.; Kitayev, G. A.; Mokrushin, S. G.

TITLE: Experimental studies of laminar systems. Part 31. Kinetics and mechanism of formation of cadmium sulfide films on a glass surface

SOURCE: Kolloidnyy zhurnal, v. 27, no. 5, 1965, 767-772

TOPIC TAGS: cadmium sulfide, colloid, chemical reaction kinetics, chemical dispersion

ABSTRACT: The kinetics of formation of colloidally dispersed cadmium sulfide in aqueous alkaline solutions with the use of thiourea were studied between 15 and 45C in closed vessels, in which thicker films of better quality are obtained than in open vessels. The process was shown to be heterogeneous, autocatalytic, and catalyzed by hydroxyl ions and by the surface of the solid phase dispersed in the solution. The order of the reaction with respect to the alkali, ammonia, and thiourea was determined. The formation, growth, and structure of the cadmium sulfide films depend on the course of generation of primary colloidal particles of the dispersed phase. "The authors express their thanks to Prof. G. V. Skrotskiy and Cand. Phys. Sci. O. K. Shabalina for assistance in work

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0901.0168

L 27900-66
ACCESSION NR: AP5024023

with the electron microscope." Orig. art. has: 7 figures, 2 tables, and 5 formulas.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (Ural Polytechnic Institute)

SUBMITTED: 12Jun64 ENCL: 00 SUB CODE: IC, CC

NO REF SOV: 001 OTHER: 002

Card 2/2 CC

L 43715-66 EWT(m)/EWP(t)/ETI IJP(c) JD
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AUTHOR: Kitayev, G. A.; Uritskaya, A. A.

ORG: Urals Polytechnical Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy institut)

TITLE: Kinetics of chemical deposition of cadmium sulfide films

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ABSTRACT: The authors continued their earlier studies of the kinetics and mechanism of the known chemical process of deposition of cadmium sulfide mirror-like films on a glass substrate from the thiourea-containing, aqueous basic solutions. The kinetics of two interrelated processes: accumulation of CdS in the solution and growth of CdS films on the substrate were studied experimentally. Similarity in the mechanism of the two processes was deduced from comparison of their rate constants which were calculated from the earlier established kinetic equations and new experimental data. The kinetic equations which describe the two processes were shown to be identical. Accordingly, both processes involve the same mechanism -- deposition of CdS, a product of a heterogeneous chemical reaction, either on colloidal CdS particles suspended in the

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